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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/813,274

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Yoshinori Hama

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EXAMINER

SHOSHO, CALLIE E

ART UNIT

PAPER NUMBER

1714

DATE MAILED: 12/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/813,274

Applicant(s)

HAMA ET AL.

Examiner

Callie E. Shosho

Art Unit

1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-10,12-14,16 and 17 is/are rejected.
- 7) ☒ Claim(s) 2,11,15 and 18-20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 11/22/06.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

1. All outstanding rejections are overcome by applicants' amendment filed 9/18/06.

In light of the new grounds of rejection set forth in paragraph 9 below, the following action is non-final.

Claim Objections

2. Claim 2 is objected to because of the following informalities:

In line 2, "50°C" should be changed to "50 °C".

3. Claims 12 and 14-15 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

(a) Claim 12, which depends on claim 1, recites that the kneading is carried out "with a kneader" while claim 1 has been amended to recite that kneading is carried out "with a kneader and further kneaded with a roll-mill". Thus, claim 12 fails to further limit the subject matter on which it depends, namely, claim 1, given that claim 12 is broader than claim 1. That is, while claim 1 requires kneading with both a kneader and a roll-mill, claim 12 only requires kneading with a kneader.

(b) Claim 14, which depends on claim 1, recites that the process further comprises "supplying the pigment, the polymer, the neutralizing agent, the organic solvent, and the water to a kneading device before the kneading, separately" while claim 1 recites kneading "with a

kneader”. Thus, claim 14 fails to further limit the scope of the claim on which it depends, namely, claim 1 given that claim 14 is broader than claim 1. That is, while claim 1 discloses first kneading with a kneader, claim 14 broadly discloses supplying to a kneading device wherein kneading device encompasses all kneading devices including those other than kneaders.

Similar objection arises with respect to claim 15 which also depends on claim 1 and which also recites kneading device and thus fails to further limit the scope of claim 1 which requires a kneader.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claim 16 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Newly added claim 16 recites “average particle diameter of the pigment after step (C) is from 152 to 162 nm”. It is the examiner’s position that this phrase fails to satisfy the written description requirement under the cited statute since there does not appear to be a written description requirement of the cited phrase in the application as originally filed, *In re Wright*, 866 F.2d 422, 9 USPQ2d 1649 (Fed. Cir. 1989) and MPEP 2163.

As support for the newly added claim, applicants point to Tables 1 and 2 of the present specification. However, while Table 1 discloses that the average particle diameter is 152 nm and Table 2 discloses that the average particle diameter of the dispersion treated mixture is 153 nm, 156 nm, or 162 nm, this does not provide support to recite that the average particle diameter of the pigment after step (C) is “from 152 to 162 nm”. That is, while there is support to recite that the average particle diameter of the pigment after step (C) is 153 nm, 156 nm, or 162 nm, there is no support to broadly recite that the average particle diameter is “from 152 to 162 nm” which includes all values between 156 nm and 162 nm for which there is no support in the specification as originally filed. Further, it is not clear what, if any, difference there is between the average particle diameter of Table 1 and the average particle diameter of Table 2 or if both represent the average particle diameter of the pigment after step (C). Clarification is requested.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Newly added claim 17 recites “wherein both water and an organic solvent are added to the resulting kneaded mixture”. The scope of the claim is confusing given that it is not clear when such addition occurs in the process. Similar to newly added claims 18 and 19 and in order to avoid confusion in the scope of the claim, it is suggested that the above phrase is amended to

recite “wherein both water and an organic solvent are added to the resulting kneaded mixture in step (B)”.

Claim Rejections - 35 USC § 103

8. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

9. Claims 1-10, 12-14 and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohta et al. (U.S. 4,597,794) in view of Inoue et al. (U.S. 6,412,940).

Attention is drawn to example 2, recording liquid B1 of Ohta et al. that discloses process for preparing aqueous dispersion of pigment comprising (A) kneading, using a sand-mill, a mixture of phthalocyanine pigment, organic solvent, water, neutralizer (morpholine), and vinyl polymer obtained from styrene, butyl acrylate, and salt-forming monomer, i.e. acrylic acid, wherein the mixture has concentration of solid matter of 50% (30/60), (B) adding organic solvent and water to dilute the kneaded mixture, and (C) dispersing the solid matter. It is disclosed that the pigment, solvent, water, neutralizing agent, and polymer are added separately to the kneader, i.e. sand mill, before kneading. There is also disclosed ink comprising the aqueous dispersion of pigment. Ohta et al. also disclose that the pigment includes carbon black (col.7, lines 23-28).

The difference between Ohta et al. and the present claimed invention is the requirement in the claims that kneading in step (A) occurs by kneading with a kneader followed by kneading with a roll-mill.

Ohta et al. disclose that the kneading in step (A) occurs using a sand-mill.

Inoue et al., which is drawn to ink jet ink, disclose mixing pigment, dispersant, water, and solvent using kneading machines such as kneader, double or triple roll-mill, sand-mill, etc. and further disclose that the machines are used individually or in combination (col.11, lines 33-42).

It is the examiner's position that the kneading machine, i.e. kneader, roll-mill, etc., is a result effective variable, because changing the type and number of kneading machines utilized will clearly affect the type of product obtained including the average particle size of the pigment. See MPEP 2144.05(B). Case law holds that "discovery of an optimum value of a result effective variable in a known process is ordinary within the skill of the art", *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to utilize appropriate combination of kneading machines, including kneader and roll-mill as presently claimed, so as to produce product with desired end results, including average particle diameter as presently claimed (claim 16), and thereby arrive at the claimed invention.

Response to Arguments

10. Applicants' arguments regarding JP 2004-026927 and JP 2003-226832 have been fully considered but they are moot in view of the discontinuation of the use of these references against the present claims.

11. Applicants' arguments filed 9/18/06 have been fully considered but, with the exception of arguments relating to JP 2004-026927 and JP 2003-226832, they are not persuasive.

Specifically, applicants' argue that there is no disclosure in Ohta et al. of using two kneading steps, i.e. one carried out with a kneader and one carried out with a roll-mill, in order to obtain improved average particle diameter for the pigment.

It is agreed that there is no disclosure in Ohta et al. of using two kneading steps as presently claimed which is why Ohta et al. is now used in combination with Inoue et al. that disclose mixing pigment, dispersant, water, and solvent using kneading machines such as kneader, double or triple roll-mill, etc. in combination.

Applicants also argue that the average particle diameter of the pigment made by the process of Ohta et al. is significantly higher than the average particle diameter of pigment made by the present invention.

However, firstly, it is noted that with the exception of claim 16, there is no requirement in the present claims regarding average particle diameter.

With respect to present claim 16, it is noted that Ohta et al. is now used in combination with Inoue et al. which teaches the use of kneading machines such as kneader, double or triple roll-mill, etc. in combination.

It is the examiner's position that the kneading machine, i.e. kneader, roll-mill, etc., is a result effective variable, because changing the type and number of kneading machines utilized will clearly affect the type of product obtained including the average particle size of the pigment. See MPEP 2144.05(B). Case law holds that "discovery of an optimum value of a result effective variable in a known process is ordinary within the skill of the art", *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to utilize appropriate combination of kneading machines, including kneader and roll-mill as presently claimed, so as to produce product with desired end results, including average particle diameter as presently claimed, and thereby arrive at the claimed invention.

Allowable Subject Matter

12. Claims 11 and 18-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.


Claims 11 and 18-20 would be allowable if rewritten in independent form as described above given that there is no disclosure in the “closest” prior art Ohta et al. (U.S.4,577,794) of process for preparing an aqueous dispersion of a pigment comprising kneading a mixture containing a pigment, a polymer having a salt-forming group, a neutralizing agent, an organic solvent, and water wherein the concentration of matter is from 50 to 80% by weight, adding water and/or organic solvent to the resulting kneading mixture to dilute the mixture, and (c) dispersing the solid matter in the resulting diluted mixture wherein the resulting kneaded mixture is subject to step (B) after the mixture is kneaded with a kneader and further kneaded with a roll mill in step (A) wherein (i) the weight average molecular weight of the polymer is 52,000 to 300,000 as required in present claim 11, (ii) only water is added to the resulting kneaded mixture in step (B) as required in present claim 18, (iii) only an organic solvent is added to the resulting kneaded mixture in step (B) as required in present claim 19, or (iv) wherein the roll-mill is used while adding water as required in present claim 20.

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13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 571-272-1123. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Callie E. Shosho
Primary Examiner
Art Unit 1714

CS
12/9/06